



**Tom Hicks**  
**Program Manager**  
**LEED for Existing Buildings**

# PERCEPTION



## OVERVIEW

# REALITY

Bank of America Tower  
at One Bryant Park  
The Durst Organization  
Cook+Fox Architects  
New York NY  
LEED-NC Registered:  
Platinum Certification goal



© dbox

## OVERVIEW

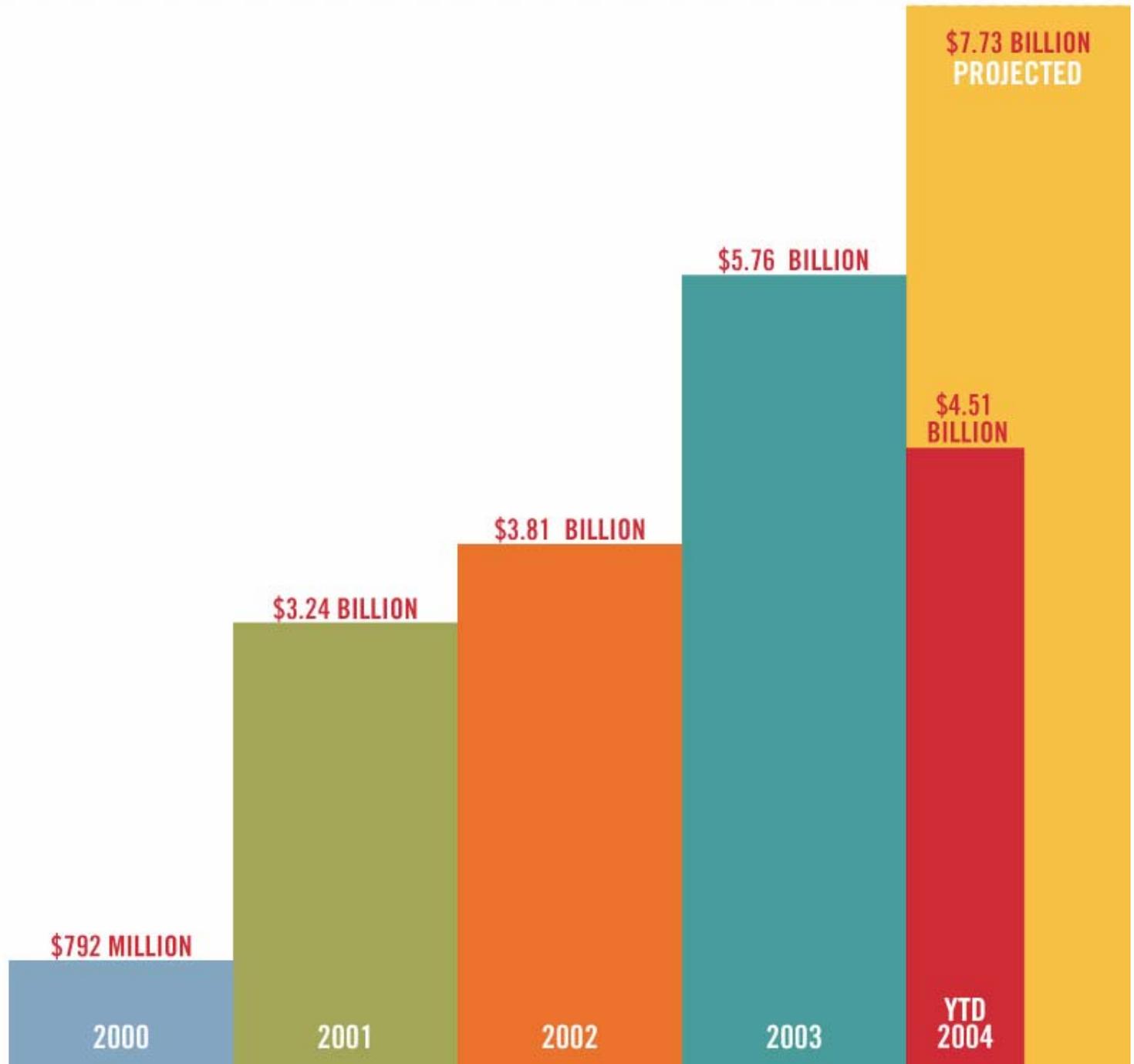
# What is Green Building?

Operating and maintenance practices and building performance that meet specified standards reducing the negative impact of buildings on their occupants and on the environment



## Estimated value of new LEED-NC registered projects.

The value of U.S. construction starts significantly declined by almost half from 2000 to 2003.





# THE RATIONALE

Green roof at  
Ford Rouge  
Ford Motor Company  
Dearborn MI  
LEED-NC Gold



# The Triple Bottom Line.

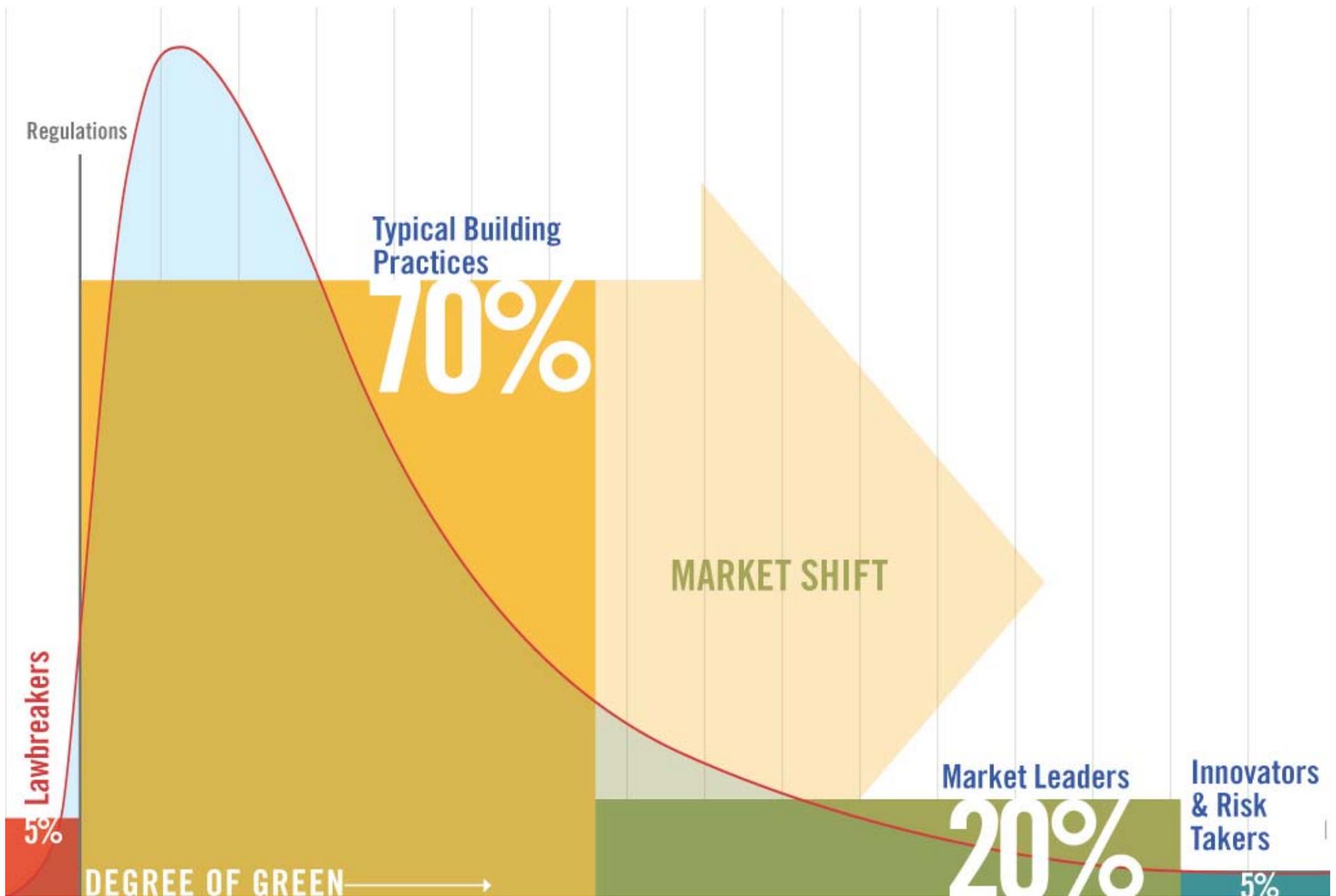


## The Triple Bottom Line.

Reduced Environmental Impact.  
Peak Efficiency.  
Improved Capitalization Rates.  
Increased Marketability.  
Higher Lease Rates.  
Improved Productivity.  
Reduced Absenteeism.  
Build Green.  
Everyone Profits.



# The Market



## Results of the California Study

33

Diverse Buildings

10

Built over the last years

1.8%

Cost construction premiums of



# Results of the California Study

5 = \$0

Five buildings had no cost increase at all.



EPA Science and  
Technology Center  
Kansas EPA  
Kansas City KS  
LEED-NC Gold

Results of the  
California Study:  
Average Bottom  
Line Savings

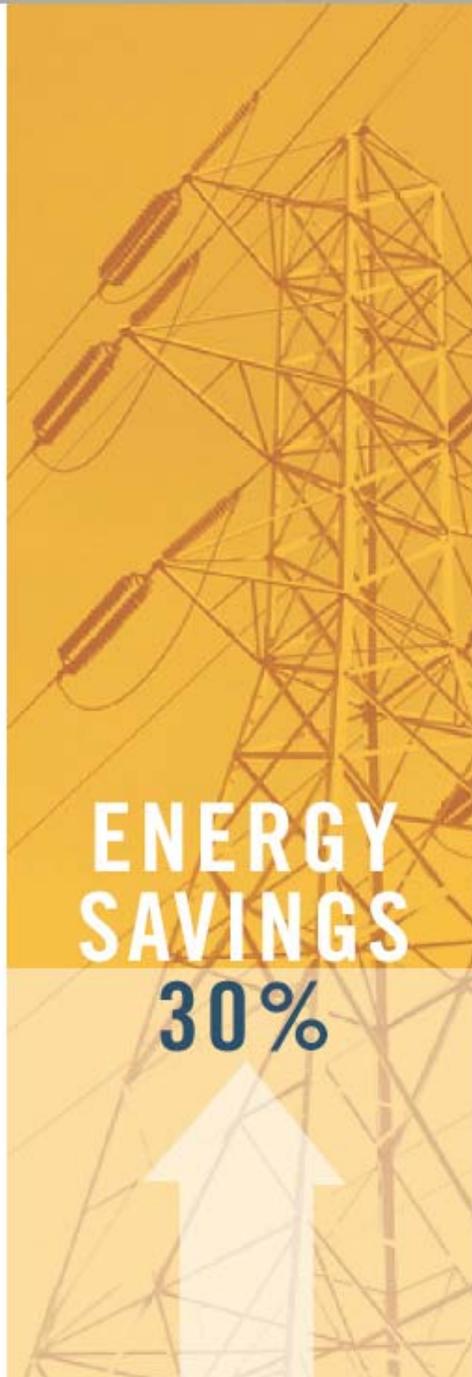
GREEN IMPROVEMENTS PAY FOR  
THEMSELVES IN **3** YEARS

(ANNUAL RETURN ON INVESTMENT IS 25–40%)



The William and  
Flora Hewlett  
Foundation  
Menlo Park CA  
LEED-NC Gold

# Results of the California Study: Average Bottom Line Savings



ENERGY SAVINGS  
30%

The graphic features a background of orange and yellow tones with a faint image of a power transmission tower. A large, light-colored arrow points upwards from the bottom of the panel.



WATER USE SAVINGS  
30-50%

The graphic features a background of blue tones with a faint image of a glass of water. A large, light-colored arrow points upwards from the bottom of the panel.

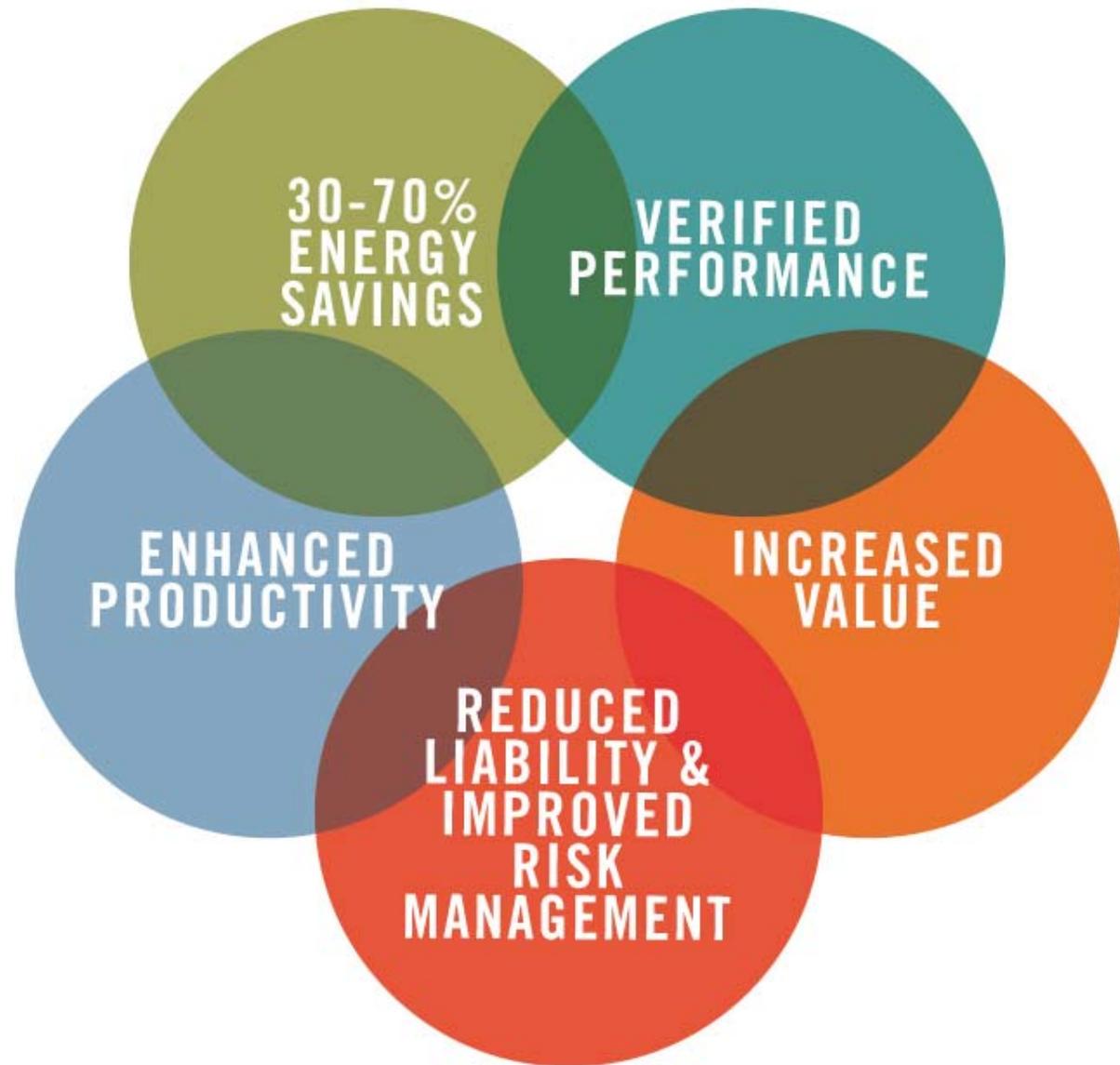


WASTE COST SAVINGS  
50-97%

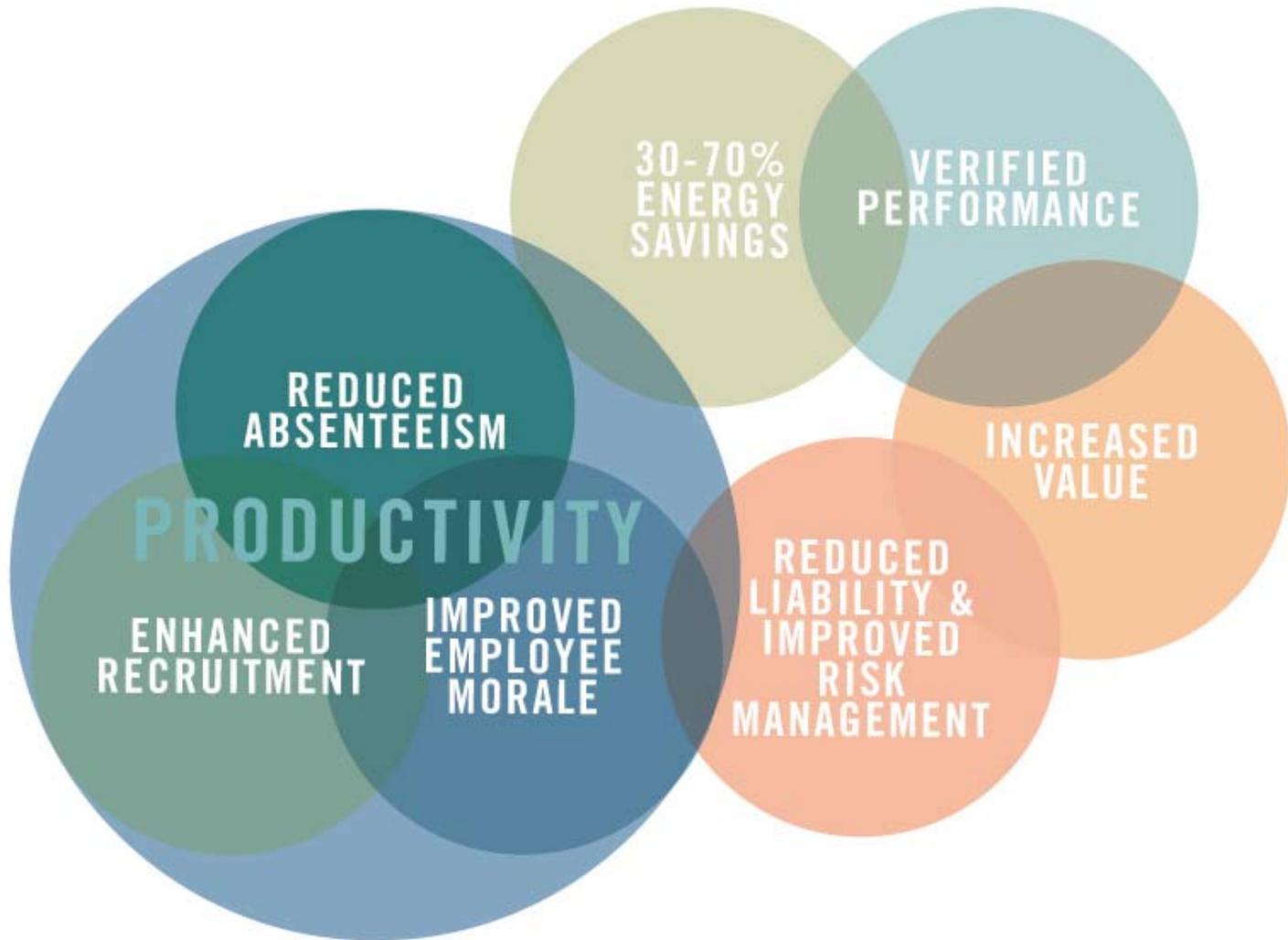
The graphic features a background of blue tones with a faint image of a recycling bin. A large, light-colored arrow points upwards from the bottom of the panel.



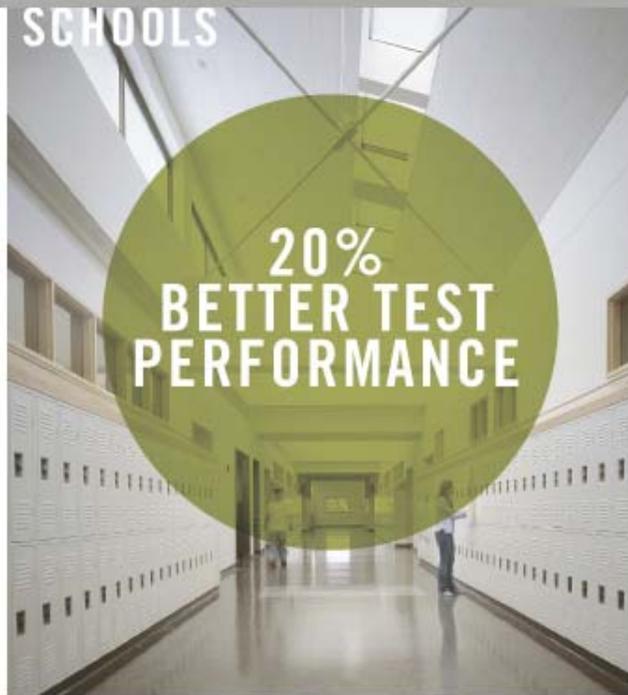
# Improved Bottom Line.



# Improved Bottom Line.

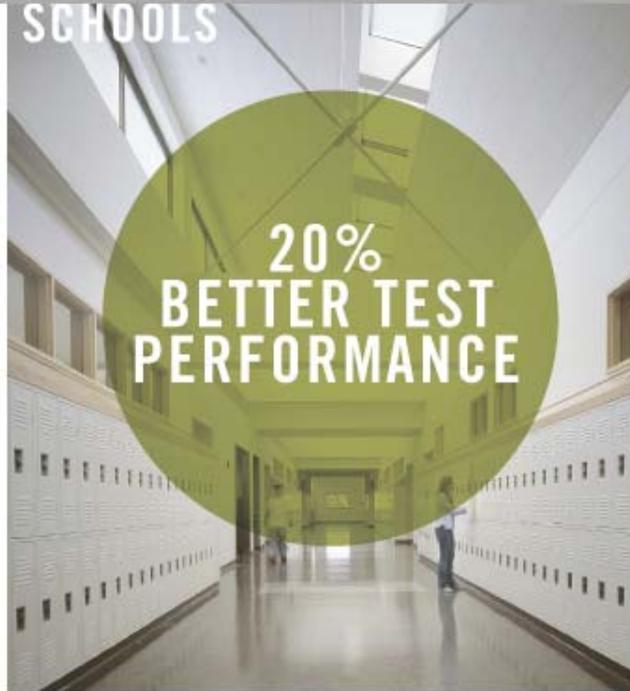


Increased  
Productivity.

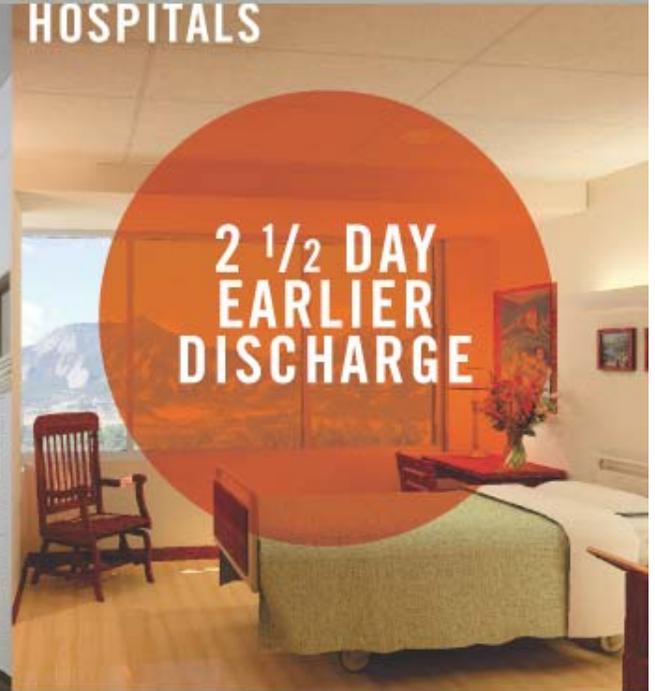


# Increased Productivity.

## SCHOOLS

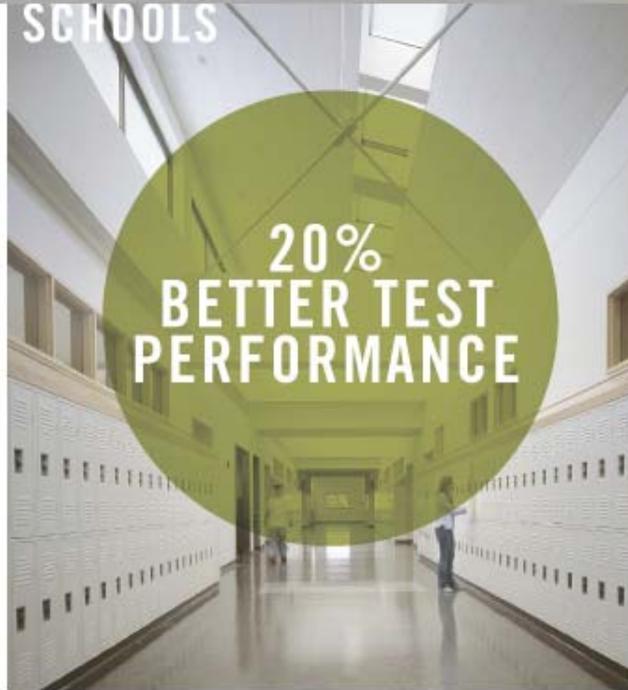


## HOSPITALS



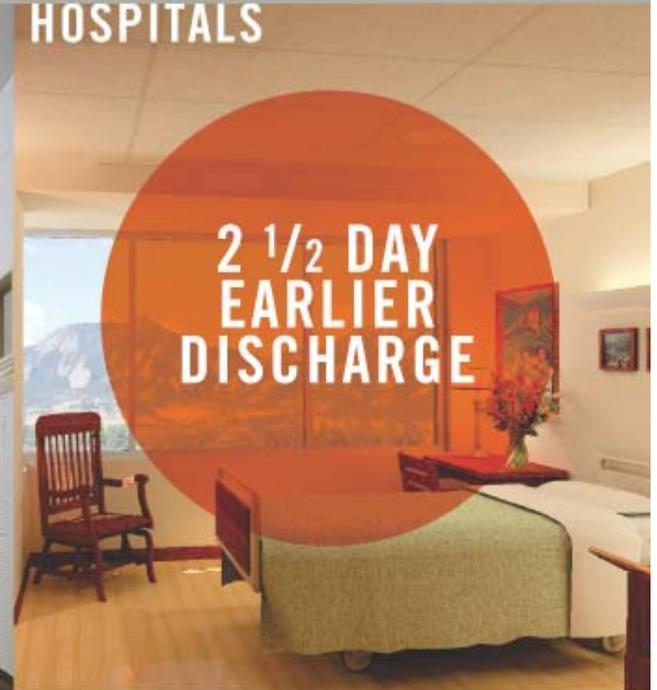
**Increased  
Productivity.**

**SCHOOLS**



**20%  
BETTER TEST  
PERFORMANCE**

**HOSPITALS**



**2 1/2 DAY  
EARLIER  
DISCHARGE**

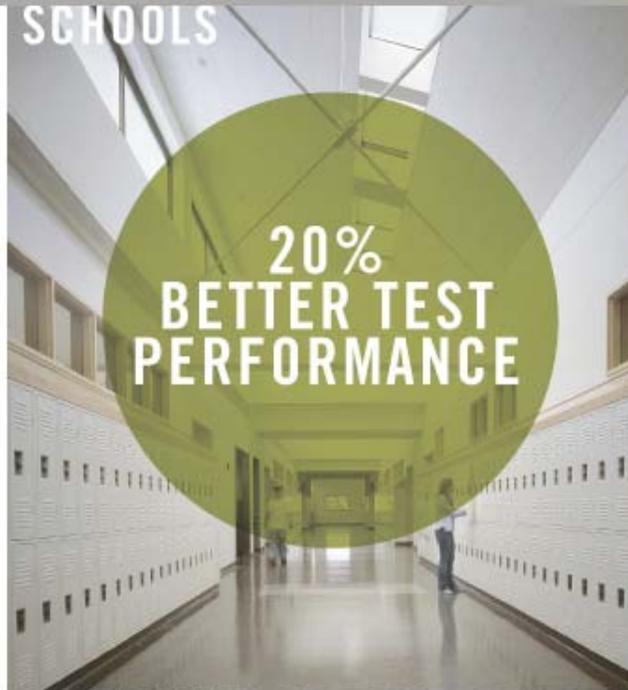
**RETAIL**



**INCREASE  
IN SALES  
PER SQUARE  
FOOT**

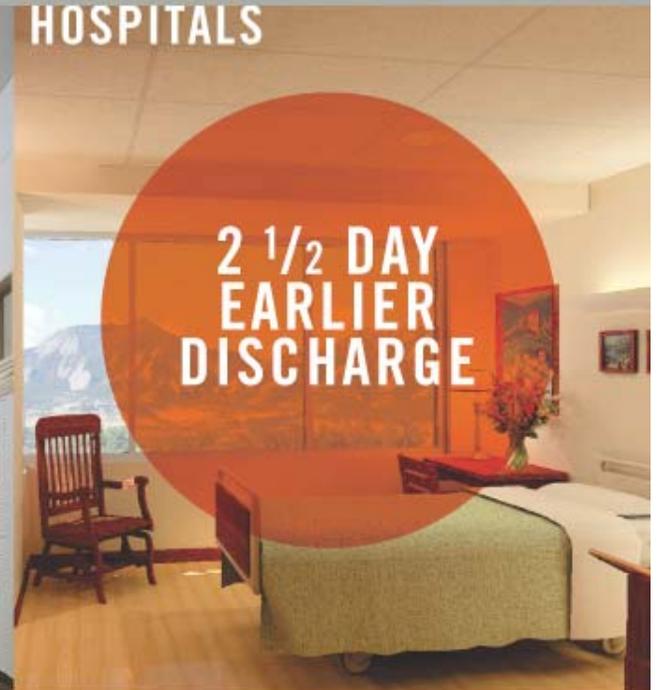
**Increased  
Productivity.**

**SCHOOLS**



**20%  
BETTER TEST  
PERFORMANCE**

**HOSPITALS**



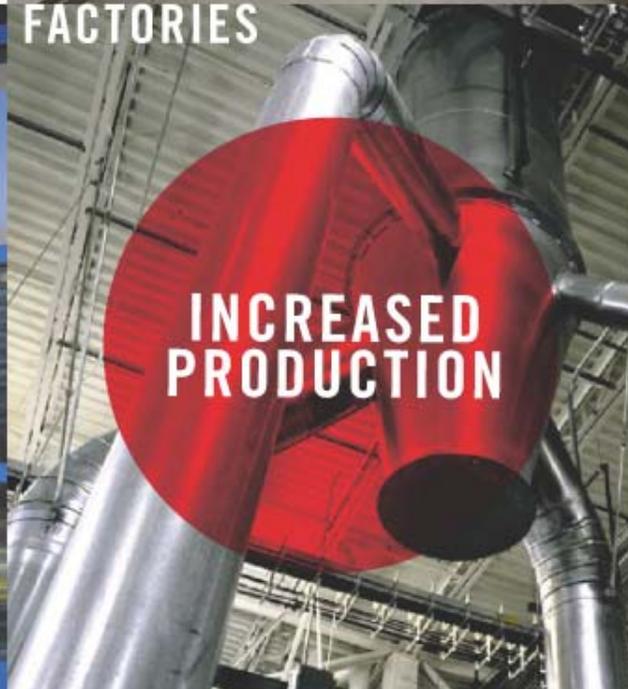
**2 1/2 DAY  
EARLIER  
DISCHARGE**

**RETAIL**



**INCREASE  
IN SALES  
PER SQUARE  
FOOT**

**FACTORIES**



**INCREASED  
PRODUCTION**

**Increased  
Productivity.**

**SCHOOLS**

**20%  
BETTER TEST  
PERFORMANCE**

**HOSPITALS**

**2 1/2 DAY  
EARLIER  
DISCHARGE**

**RETAIL**

**INCREASE  
IN SALES  
PER SQUARE  
FOOT**

**FACTORIES**

**INCREASED  
PRODUCTION**

**OFFICES**

**2-16%  
PRODUCTIVITY  
INCREASE**

# USGBC



Architects

Building Owners

Product Manufacturers

Planners

Contractors

USGBC

Engineers

Financial Reps

Utility Managers

Interior Designers

Building Tenants

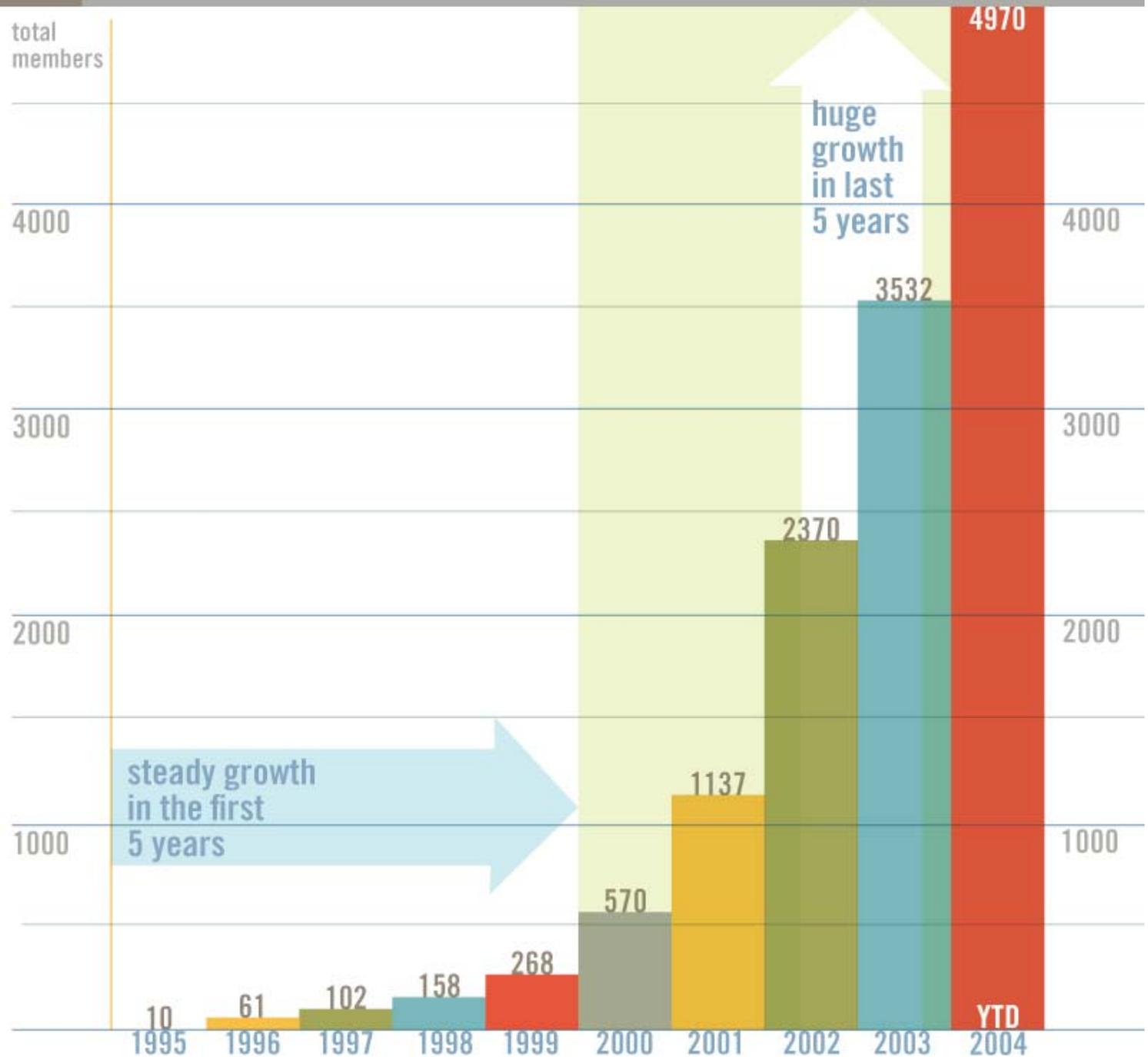
Landscape Architects

Property Managers

Code Officials

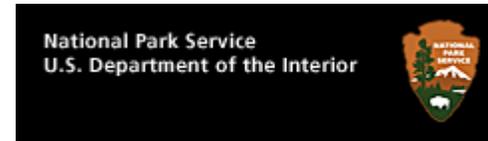


**USGBC membership growth reflects the expansion of green buildings in the market.**





**U.S. COAST GUARD**





*Lawrence Livermore National Laboratory*



U.S. General Services Administration

*Tennessee Valley Authority*



PENTAGON RENOVATION & CONSTRUCTION



**U.S. COAST GUARD**



*Sandia National Laboratory*



*Oak Ridge National Laboratory*

National Park Service  
U.S. Department of the Interior



*Brookhaven National Laboratory*



*The World Bank*



## Who are we?

**USGBC is a coalition of the country's foremost leaders from across the building industry.**

**We promote buildings that are:**

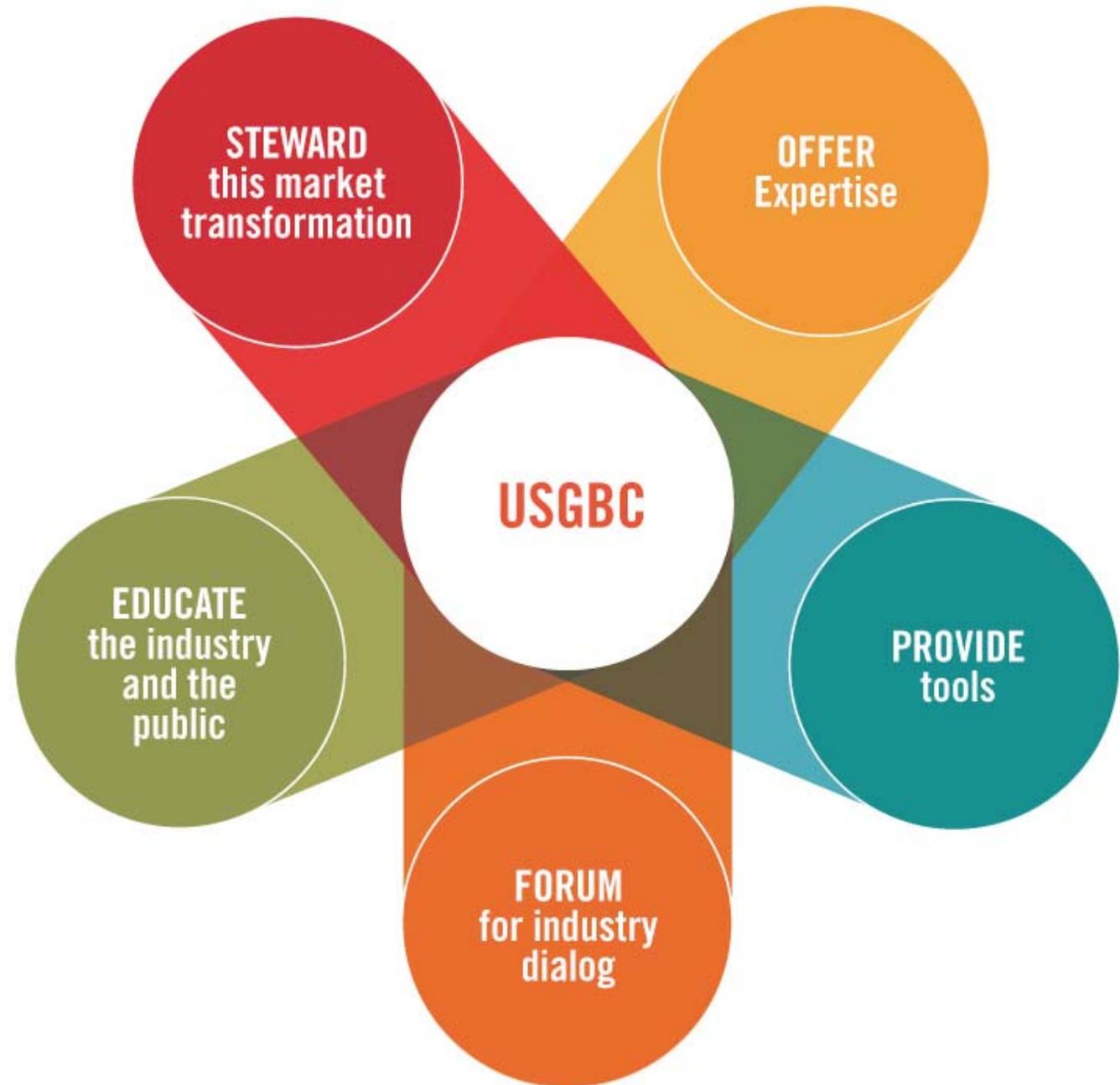
- 1. Environmentally Responsible**
- 2. Economically Profitable**
- 3. Healthy Places to Live and Work**



# What is our role?



## What is our role?



## What is the LEED System?

### LEADERSHIP in ENERGY and ENVIRONMENTAL DESIGN

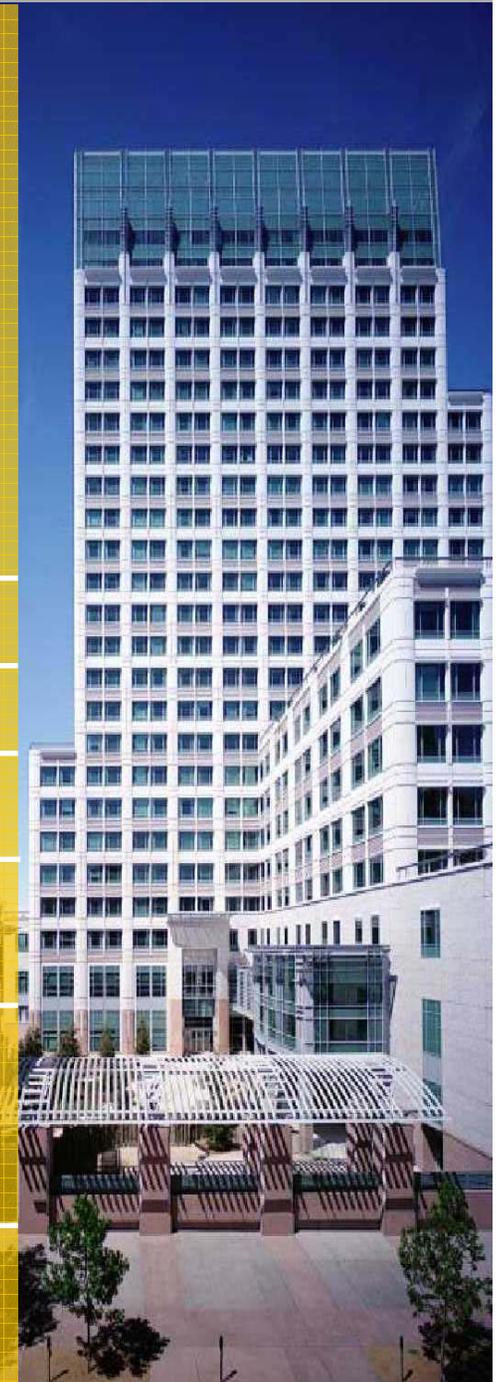
A leading-edge system for certifying **BUILDING PERFORMANCE** and **OPERATIONS & MAINTENANCE** of the greenest buildings in the world



Scores are tallied for different aspects of building performance in appropriate categories.

For instance, LEED-EB assesses performance of:

1. Sustainable Sites
2. Water Efficiency
3. Energy Performance
4. Material & Resource Use
5. Indoor Environmental Quality
6. Innovation in Upgrades and O&M



## Categories of LEED Ratings

**LEED-NC**

New  
Construction

**LEED-CI**

Commercial  
Interiors

**LEED-EB**

Existing  
Building



## Categories of LEED Ratings

**LEED-NC** New Construction

**LEED-CI** Commercial Interiors

**LEED-EB** Existing Building

## FUTURE PROGRAMS

**LEED-CS** Core & Shell

**LEED-HOMES**

**LEED-ND** Neighborhood Development

**LEED** Application Guides

Healthcare,  
Laboratories,  
Schools,  
Retail,  
Multi-building Campuses  
Multi-family Residential



# Key Differences Between LEED-NC and LEED-EB

## LEED-NC

an event

affects design & construction

capital budgets

NC

## LEED-EB

a process



## Levels of LEED Ratings

### LEED-EB Rating System

- 13 Prerequisites
- 85 Points

Green Buildings worldwide are defined and certified with consensus-based standards.

USGBC has four levels of LEED.



LEED-EB  
Pilot  
Participants

## Historical Preservation

The Eisenhower Executive Office Building  
(The “Old Executive Office Building”)



## WMD/Terrorism

## Special HVAC Systems



## Increased Security

The Pentagon  
(Wedge 1-5 Renovation, POAC, Metro Entrance)

## Architectural Details

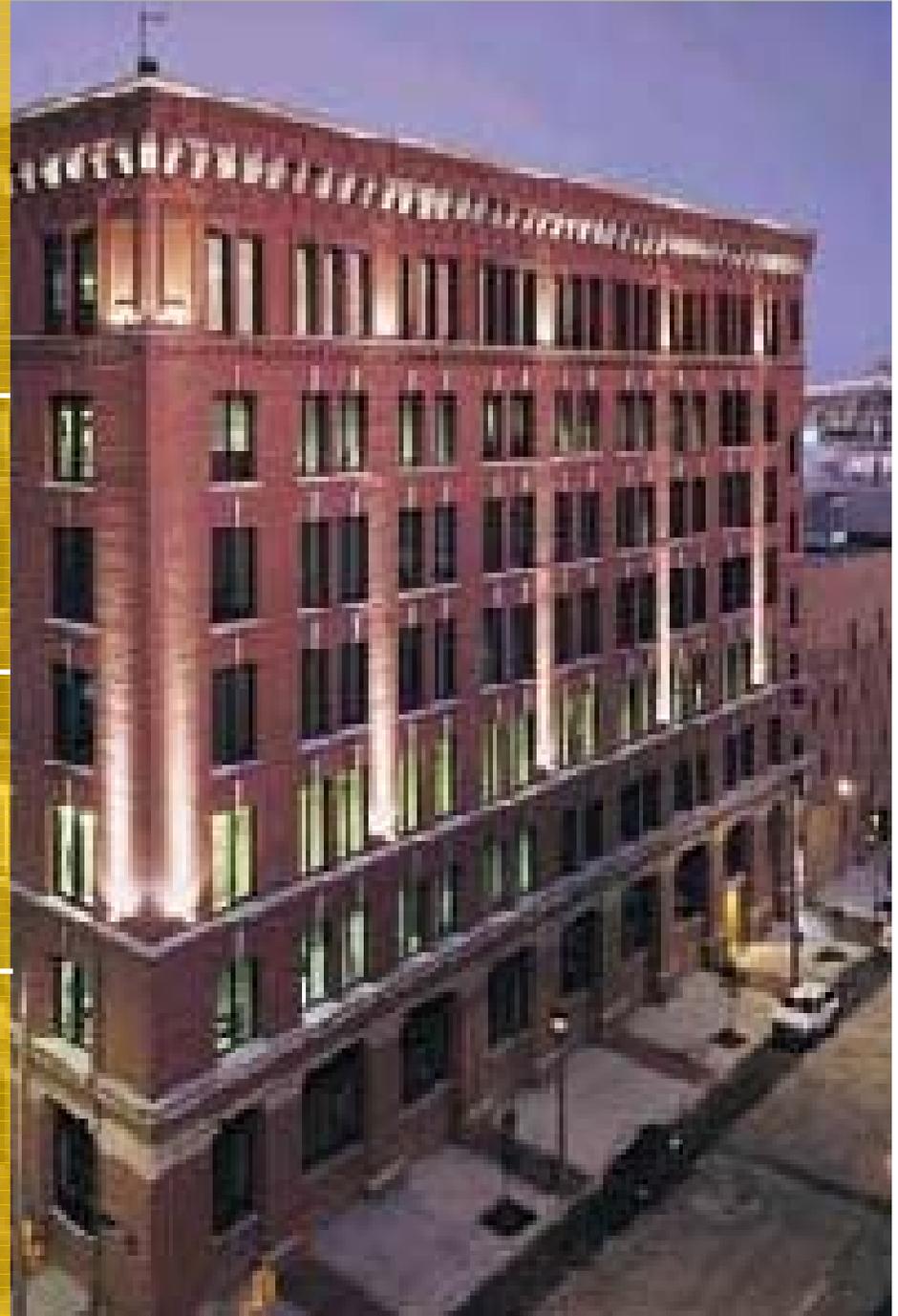


# When to Use LEED-EB?



## When to Use LEED-EB?

1. For buildings within 1 year of LEED-NC certification
2. For buildings undergoing renovations
3. Initial certification of existing buildings
4. Every 1 to 5 years after LEED-EB certification



# LEED-EB RATING SYSTEM CERTIFICATION LEVELS

Certified	32-39 points (40%)
Silver	40-47 points (50%)
Gold	48-63 points (60%)
Platinum	64-85 points (80%)



Build green. Everyone profits.

# SUSTAINABLE SITES



- Erosion and Sedimentation Control
- Age of Building

- Green Site and Building Exterior Management
- High Development Density Building and Area Alternative Transportation
- Reduced Site Disturbance
- Stormwater Management
- Heat Island Reduction
- Light Pollution Reduction

**14 of 85 points**



**LEED·EB**

Build green. Everyone profits.

# WATER EFFICIENCY

- Minimum Water Efficiency
- Discharge Water Compliance
- Water Efficient Landscaping
- Innovative Wastewater Technologies
- Water Use Reduction



Build green. Everyone profits.

**5 of 85 points**

# ENERGY & ATMOSPHERE

- Existing Building Commissioning
- Minimum Energy Performance
- Ozone Protection

- Optimize Energy Performance
- On/Off Site Renewable Energy
- Building O&M
- Additional Ozone Protection
- Performance Measurement
- Documenting Cost Impacts

**23 of 85 points**



Build green. Everyone profits.

# MATERIALS & RESOURCES



- Source Reduction & Waste Management
- Toxic Material Source Reduction

- Construction Waste Management
- Optimized Use of Alternative Materials
- Optimized Use of IAQ Compliant Products
- Sustainable Cleaning Products
- Occupant Recycling
- Additional Toxic Material Source Reduction



LEED·EB

Build green. Everyone profits.

**16 of 85 points**

# INDOOR ENVIRONMENTAL QUALITY



- Outside Air Exhaust
- Tobacco Smoke Control
- Asbestos/PCB Removal

- Outdoor Air Delivery Monitoring
- Increased Ventilation Construction
- IAQ Management Plan
- Documenting Productivity Impacts
- Indoor Chemical & Pollutant Source Control
- Controllability Of Systems
- Thermal Comfort
- Daylighting & Views
- Contemporary IAQ Practice
- Green Cleaning

**22 of 85 points**



**LEED·EB**

Build green. Everyone profits.

# INNOVATION

- Up to 5 Additional Credits
- LAP: 1 Credit
- Innovations: 1-4 Credits



LEED·EB

Build green. Everyone profits.

## Case Study National Geographic Society

National Geographic  
Society Headquarters  
Complex  
Washington DC  
Commercial Office  
LEED-EB Silver  
Pilot Project



**Case Study**  
**National Geographic Society**

National Geographic Society Headquarters Complex  
Washington DC  
Commercial Office  
LEED-EB Silver  
Pilot Project

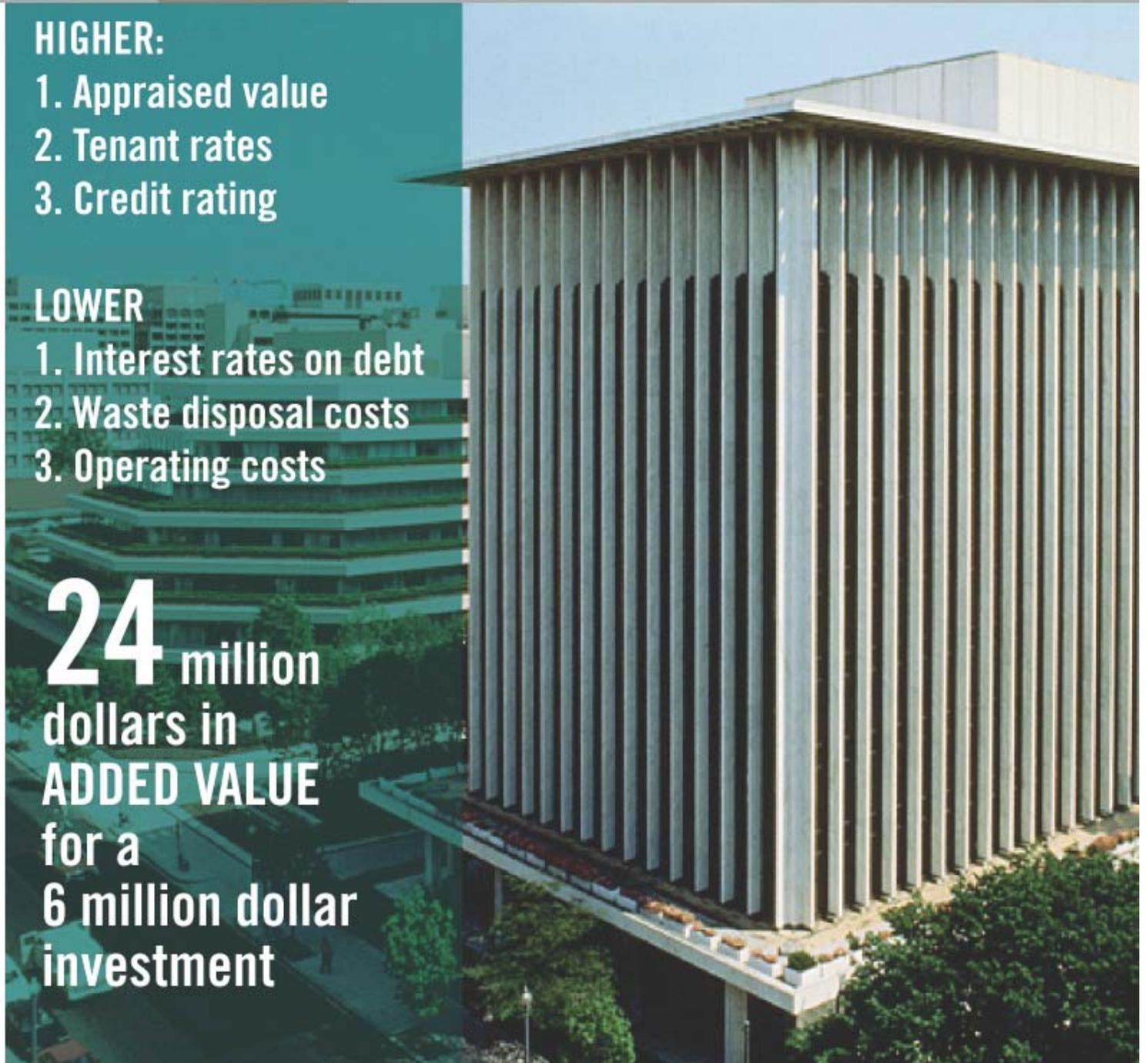
**HIGHER:**

1. Appraised value
2. Tenant rates
3. Credit rating

**LOWER**

1. Interest rates on debt
2. Waste disposal costs
3. Operating costs

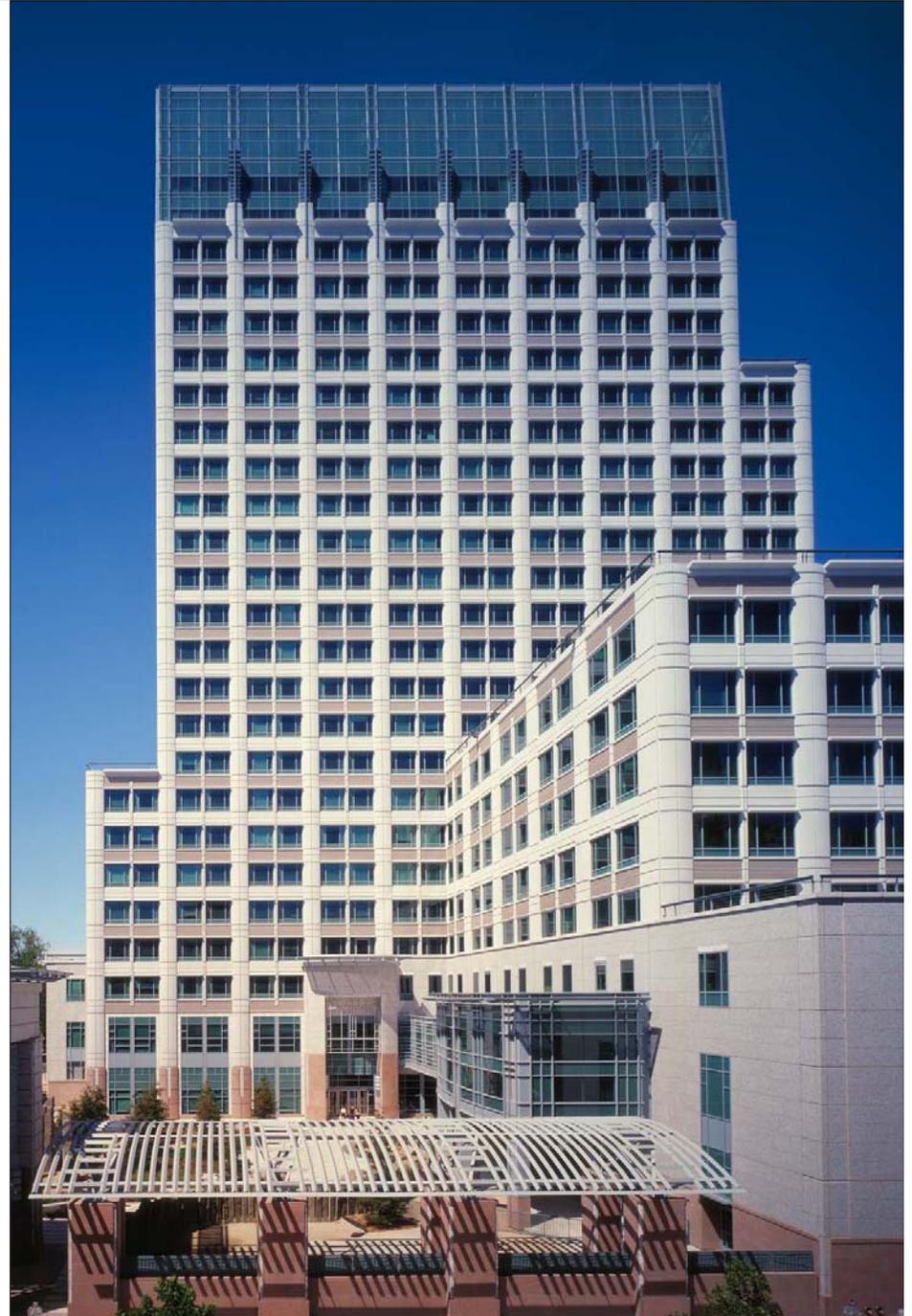
**24** million dollars in **ADDED VALUE** for a 6 million dollar investment



## Case Study

### Thomas Properties Group

Joe Serna Jr.  
California EPA  
Headquarters  
Sacramento, CA  
Commercial  
Office  
LEED-EB  
Platinum Pilot  
Project



## Case Study

### Thomas Properties Group

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## HIGHER

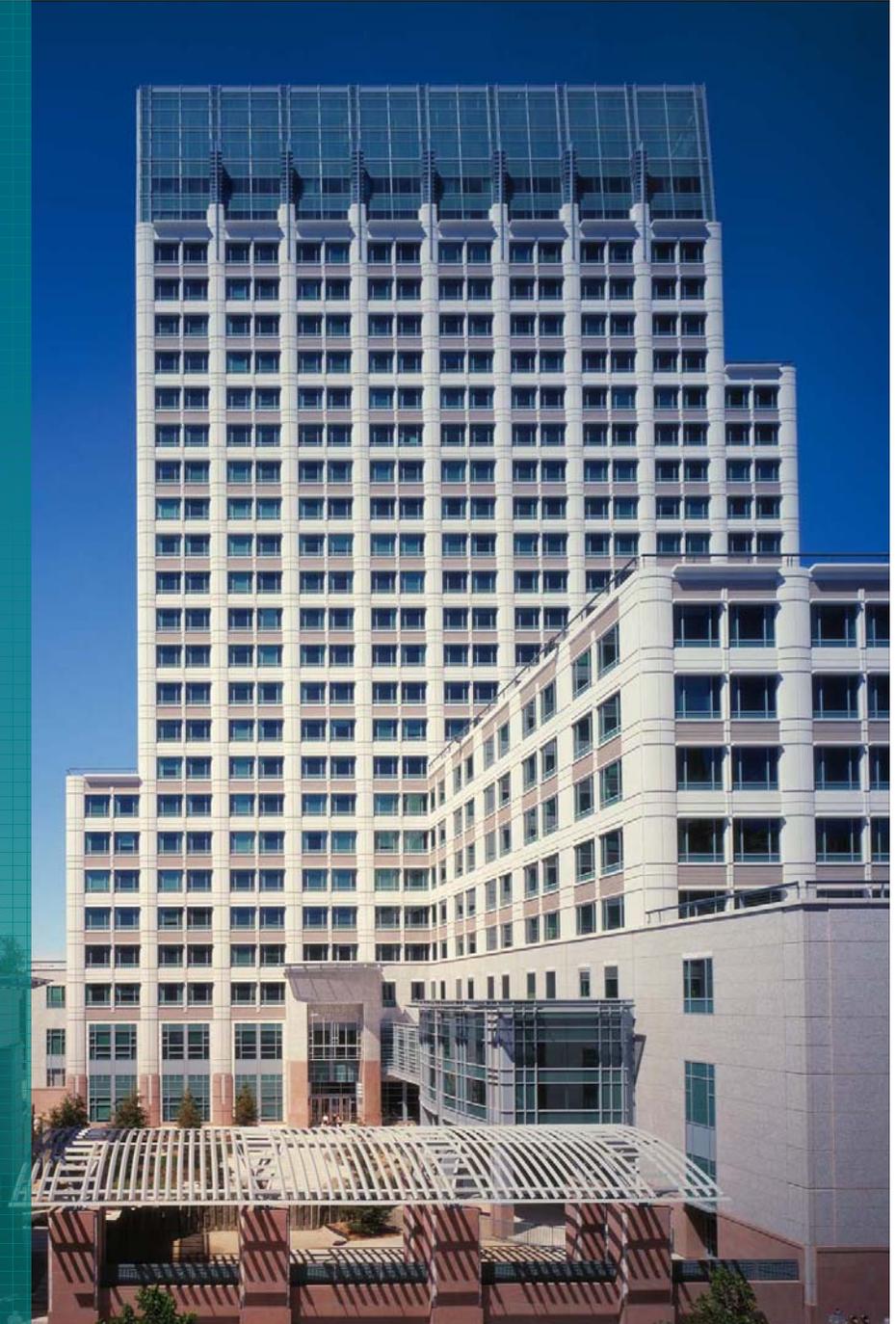
1. Staff retention
2. Occupant
3. Asset Value

## LOWER

1. Energy Use
2. Waste Disposal
3. Operational Costs

**10** million dollar  
increase in asset  
value.

**1,000,000**  
dollars in annual  
savings due to  
improved operations.



100 fume hoods centrally controlled

recycled 86 tons of construction waste

automatic shade louvers

personal comfort controls

*The water throughout Wisconsin says thanks!*

Headquarters  
JohnsonDiversey  
Sturtevant, WI  
Office/R&D  
LEED-EB Gold  
Pilot Participant

### Green Facts

John M. Langston High School  
Continuation & Langston-Brown  
Community Center  
Arlington, Virginia

LEED-NC rating out of 69

**Silver 35**

**Sustainable Site 8**

**Water Efficiency 3**

**Energy & Atmosphere 4**

**Materials & Resources 6**

**Indoor Environmental Quality 11**

**Innovation & Design 3**

USGBC LEED-NC rated Sept. 3, 2003.

*The environment around Denver says thanks!*

peregrine falcon nesting box

T-8 fluorescent lamps & occupancy sensors

ENERGY STAR Rating = 88

Green Label vacuums

two 550 ton plate & frame heat exchangers

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USGBC LEED-NC rated Sept. 3, 2003.

Denver Place  
Amerimar Realty Management  
Denver, CO  
Office  
LEED-EB Silver  
Pilot Participant

natural gas radiant  
heat snow melting

# The air above Milwaukee says thanks!

2,000,000 lbs of CO<sub>2</sub> prevented

rainwater recovery

0.86 watts/ft<sup>2</sup> lighting

water efficient fixtures

10% day lighting

personal comfort controls

employee bicycle room

Bregel Technology Center  
Johnson Controls  
Milwaukee, WI  
Office  
LEED-NC Silver  
LEED-EB Gold  
Pilot Participant

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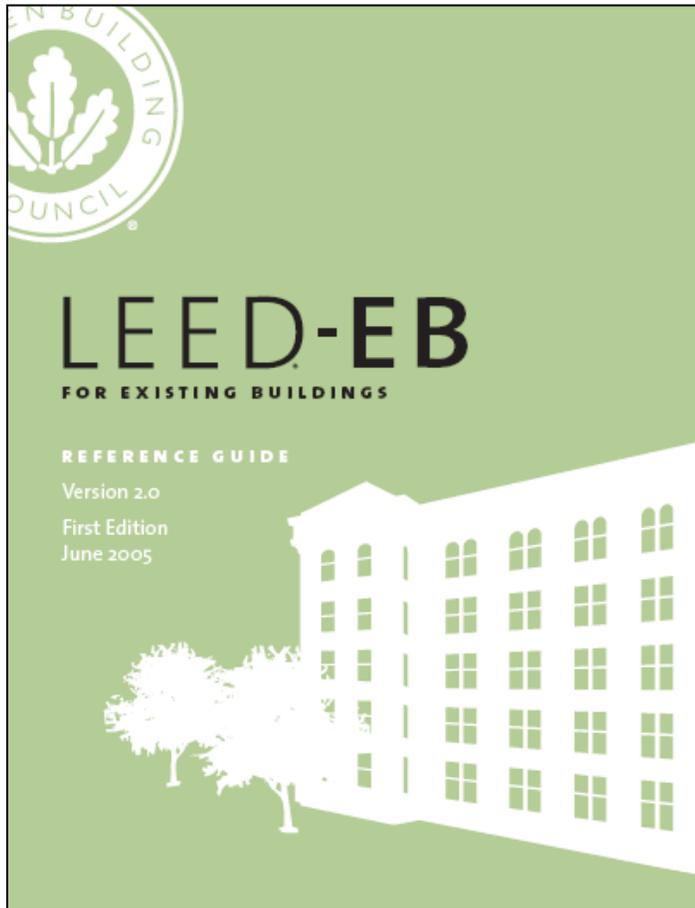
**Energy & Atmosphere** 4

**Materials & Resources** 6

**Indoor Environmental  
Quality** 11

**Innovation & Design** 3

USGBC LEED-NC rated Sept. 3, 2003.



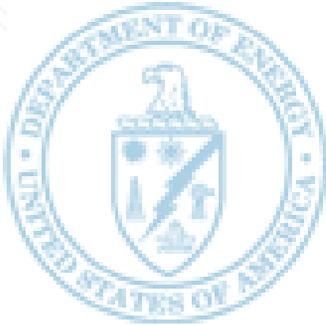
LEED-EB 2.0 Reference Guide

## LEED-EB 2.0 Letter Templates

**LEED-EB**  
LEED-EB Version 2.0 Registered Building Checklist

Building Name: \_\_\_\_\_  
Building Address: \_\_\_\_\_

Yes	No		Possible Points
<b>Sustainable Sites</b> Possible Points: 16			
		Prereq 1 Erosion & Sedimentation Control	Required
		Prereq 2 Age of Building	Required
		Credit 1.1 Plan for Green Site & Building Exterior Management - 4 specific actions	1
		Credit 1.2 Plan for Green Site & Building Exterior Management - 5 specific actions	1
		Credit 2 High Development Density Building & Area	1
		Credit 3.1 Alternative Transportation - Public Transportation Access	1
		Credit 3.2 Alternative Transportation - Bicycle Storage & Changing Rooms	1
		Credit 3.3 Alternative Transportation - Alternative Fuel Vehicles	1
		Credit 3.4 Alternative Transportation - Car Pooling & Telecommuting	1
		Credit 4.1 Reduced Site Disturbance - Protect or Restore Open Space (50% of site area)	1
		Credit 4.2 Reduced Site Disturbance - Protect or Restore Open Space (75% of site area)	1
		Credit 5.1 Stormwater Management - 25% Rate and Quantity Reduction	1
		Credit 5.2 Stormwater Management - 50% Rate and Quantity Reduction	1
		Credit 6.1 Heat Island Reduction - Non-Roof	1
		Credit 6.2 Heat Island Reduction - Roof	1
		Credit 7 Light Pollution Reduction	1
<b>Water Efficiency</b> Possible Points: 8			
		Prereq 1 Minimum Water Efficiency	Required
		Prereq 2 Discharge Water Compliance	Required
		Credit 1.1 Water Efficient Landscaping - Reduce Water Use by 50%	1
		Credit 1.2 Water Efficient Landscaping - Reduce Water Use by 95%	1
		Credit 2 Innovative Wastewater Technologies	1
		Credit 3.1 Water Use Reduction - 10% Reduction	1
		Credit 3.2 Water Use Reduction - 20% Reduction	1
<b>Energy &amp; Atmosphere</b> Possible Points: 23			
		Prereq 1 Existing Building Commissioning	Required
		Prereq 2 Minimum Energy Performance - Energy Star 60	Required
		Prereq 3 Ozone Protection	Required
		Credit 1.1 Optimize Energy Performance - Energy Star 63	1
		Credit 1.2 Optimize Energy Performance - Energy Star 67	1
		Credit 1.3 Optimize Energy Performance - Energy Star 71	1
		Credit 1.4 Optimize Energy Performance - Energy Star 75	1
		Credit 1.5 Optimize Energy Performance - Energy Star 79	1
		Credit 1.6 Optimize Energy Performance - Energy Star 83	1
		Credit 1.7 Optimize Energy Performance - Energy Star 87	1
		Credit 1.8 Optimize Energy Performance - Energy Star 91	1
		Credit 1.9 Optimize Energy Performance - Energy Star 95	1
		Credit 1.10 Optimize Energy Performance - Energy Star 99	1
		Credit 2.1 Renewable Energy - On-site 5% / Off-site 25%	1
		Credit 2.2 Renewable Energy - On-site 10% / Off-site 50%	1
		Credit 2.3 Renewable Energy - On-site 20% / Off-site 75%	1
		Credit 2.4 Renewable Energy - On-site 30% / Off-site 100%	1
		Credit 3.1 Building Operation & Maintenance - Staff Education	1
		Credit 3.2 Building Operation & Maintenance - Building Systems Maintenance	1
		Credit 3.3 Building Operation & Maintenance - Building Systems Monitoring	1
		Credit 4 Additional Ozone Protection	1
		Credit 5.1 Performance Measurement - Enhanced Metering (4 specific actions)	1
		Credit 5.2 Performance Measurement - Enhanced Metering (5 specific actions)	1
		Credit 5.3 Performance Measurement - Enhanced Metering (12 specific actions)	1
		Credit 5.4 Performance Measurement - Emission Reduction Reporting	1
		Credit 6 Documenting Sustainable Building Cost Impacts	1



&



Join USGBC  
& get  
involved

Train sales  
staff

Use case  
studies

Become  
LEED-AP

Become an  
educational  
partner

Sponsor  
workshops

Attend, exhibit,  
& sponsor  
GreenBuild

LEED Certify  
Federal  
Reserves  
& other  
facilities



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**202.587.7184**